

CLAIMS

What is claimed is:

5 1. A torque detector, comprising:

a synchronous detector to detect an Alternating Current (AC) voltage signal having a preset Direct Current (DC) voltage level and a certain frequency, and generate a detection output signal;

10 a bridge circuit in which a torque detection coil whose inductance varies with rotation of a steering wheel and a temperature compensation coil whose inductance varies with temperature variation are connected in series to each other, the detection output signal and the DC voltage being applied to both ends of the two connected coils, respectively, the bridge circuit allowing a first detection voltage to be induced at a connecting point between the two coils by variation of the inductance of the two coils;

15 and

a signal converter to generate a torque detection signal having an amplitude corresponding to a difference between peak values of a preset reference voltage and the first detection voltage.

20 2. The torque detector according to claim 1, wherein the synchronous detector outputs a half-wave signal of the AC voltage signal corresponding to more than the DC voltage level as the detection output signal.

25 3. The torque detector according to claim 1, further comprising:
a sampling pulse generator to generate a sampling pulse signal having a same

phase as the AC voltage signal;

wherein the synchronous detector is synchronized with the sampling pulse signal to detect the AC voltage signal.

5 4. The torque detector according to claim 1, wherein the signal converter comprises:

 a peak detector to detect peak values of the first detection voltage and the reference voltage;

10 a differential amplifier to amplify a difference between the peak values detected by the peak detector; and

 a voltage-current converter to generate the torque detection signal by converting a voltage signal amplified by the differential amplifier into a current signal.

5. A torque detector, comprising:

15 a sampling pulse generator to generate a sampling pulse signal;

 a synchronous detector to receive an AC voltage signal having a same phase as the sampling pulse signal and a preset DC voltage level, detect the AC voltage signal and output a detection output signal formed of a half-wave signal of the AC voltage signal;

20 a bridge circuit in which a torque detection coil whose inductance varies with rotation of a steering wheel and a temperature compensation coil whose inductance varies with temperature variation are connected in series to each other, the detection output signal and the DC voltage being applied to both ends of the two connected coils, respectively, the bridge circuit allowing a first detection voltage to be induced at a 25 connecting point between the two coils by variation of the inductance of the two coils;

and

a signal converter to generate a torque detection signal having an amplitude corresponding to a difference between peak values of a preset reference voltage and the first detection voltage.